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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,264	01/03/2002	Seungbae Park	EN999048D	8328
41245	7590	02/10/2006	EXAMINER GARCIA, ERNESTO	
MARK LEVY & ASSOCIATES, PLLC PRESS BUILDING, SUITE 902 19 CHENANGO STREET BINGHAMTON, NY 13901			ART UNIT 3679	PAPER NUMBER

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,264

Applicant(s)

PARK ET AL.

Examiner

Ernesto Garcia

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005 and 07 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 and 17-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/07/2005 has been entered.

Election

Claims 11-14 and 17-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 22, 2002.

Regarding the continued withdrawal of claim 17, applicant states that the amendment to claim 17 makes claim 17 readable upon Figures 3a and 4 because "the

obstacle is formed along the upper surface". This statement is still incorrect as Figure 4 does not have an obstacle being "integral" along the upper surface 20 as argued. There is still nothing formed along the upper surface. Instead, Figure 4 shows the upper surface being the obstacle. Further, how can the upper surface 27 be "integral" and integral to what? Note, that Figure 3a shows an undulating upper surface and a flat bottom surface. There is nothing formed along the upper surface as Figures 3c-3g show. Alternatively, isn't the upper surface forming the obstacle?

Regarding the withdrawal of claims 18-23, since claim 17 is withdrawn, inherently any claim that depends from a withdrawn claim is withdrawn.

Claim Rejections - 35 USC § 102

Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Baker et al., 4,532,681 (see marked-up attachment).

Regarding claim 24, Baker et al. disclose, in Figure 5, a solder joint comprising a first metallic pad **41**, a second metallic pad **40**, and solder **44** (see Abstract, line 3). The first metallic pad **41** has a substantially planar first lower surface **A11** and a first upper surface **A12** including first serpentine undulations **A13**. The second metallic pad **40** has a substantially second upper surface **A15** and a second lower surface **A16** including second serpentine undulations **A17** extending downwardly. The solder **44**

interconnects the first upper surface **A12** with the second lower surface **A16**. Applicant is reminded that within the scope of the invention of Baker et al., Figure 5 has solder between the pads **40,41**.

Response to Arguments

Applicant's arguments filed on September 7, 2005 have been fully considered but they are not persuasive.

With respect to Baker et al., applicants argue that the reference does not disclose the structure currently recited. In response, applicants have not indicated what structure the reference fails to teach. Applicants have argued that the examiner has improperly interpreted well-known terms of art to apply to any metal pad, any solder joint, and any substrate in any field of endeavor. In response, applicants have to provided evidence that the structure of Baker et al. cannot be construed as solder joint. In respect to the metal pad or the substrate, applicants should note that the invention is not directed to a metal pad or a substrate, but rather a "solder joint".

Applicants argued that Baker et al. do not disclose a "solder joint" for interconnecting "an electronic chip to a substrate". Applicants should note that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus

satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Applicants further argue that Baker appears to depict a layer of special adhesive alloy. In response, it is well noted that a special adhesive alloy is used; however, applicants need to note that the abstract provides specifics that the "special adhesive alloy" is "solder" (see line 3 of the Abstract).

Applicants further argue that Baker fails to disclose a "metallic pad having a substantially planar lower surface for engaging the substrate". In response, the rejection has specifically pointed out the metallic pad and the planar lower surface. The claim does not positively recite a substrate and is not required. The limitation "for engaging the substrate" is intended use and does not add any structure to the solder joint. Further, it is clear that the lower surface could as well be able to engage a substrate. There's nothing in the lower surface that prevent engagement with a substrate.

Applicants further argue that Baker et al. never explains the nature of the structure depicted in Figure 5. In response, the fact that Baker et al. fails to describe Figure 5, does not render fail to disclose a solder joint when the scope of the invention states that two pieces are joined with soldered and clearly shown in Figure 5. Anyone reading the scope of the invention of Baker et al. will conclude that the joint is a soldered joint.

Applicants further argue that Baker et al. do not disclose "a metal pad" as it is well known to those skilled in the art of printed circuit boards. In response, the term "pad" has been given its broadest reasonable interpretation. All that is required to meet the structure of a pad is that the pad be metallic, and include a substantially planar surface and a first upper surface including a serpentine undulation, which are taught by Baker et al.

Applicants further argue that the reference of Baker et al. contains no explanation of the structure depicted in Figure 5 and thus cannot disclose or teach "micro-cracks, forming in the solder adjacent to the upper surface, will encounter the obstacle". In response, this phenomenon is inherent and caused by the mere presence of the serpentine undulations in Baker et al. One skilled in the art will recognize that when micro-cracks are present in the structure provided by Baker et al., the serpentine undulation will inherently encounter the micro-cracks or vice versa.

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued

examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083/7083. The examiner can normally be reached from 9:30-6:00. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on 571-272-7087. Any inquiry of a

general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



E.G.

February 5, 2006

Attachments: one marked-up page of Baker et al., 4,532,681.



DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Art Unit: 3679

Baker et al., 4,532,681

FIG. 5.

